INTERNATIONAL ECONOMICS 28.04.2021

Factor Price Equalisation Theorem

Deals with effect of international trade on factor prices.

This theorem was given by Samuelson (1970)

It is also called H-O-Samuelson or H-O-S theorem.

Theorem:

International trade will bring about equalization in the relative and absolute return to homogenous factors across nations.

International Trade ⟶ Wages of homogenous labor to be same in all trading nations.

* Homogenous labor is labor with same skills, training and productivity.

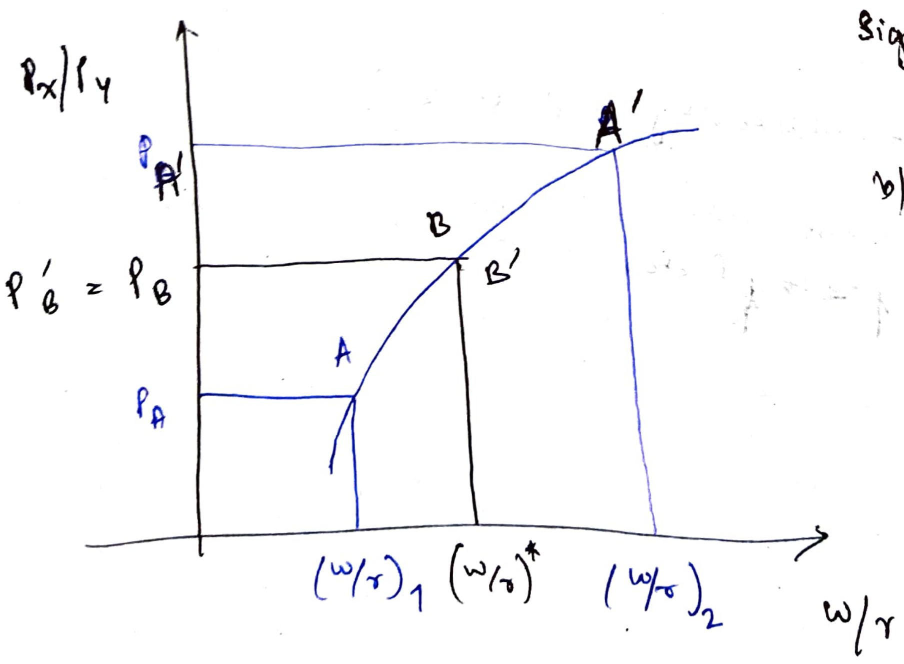
* Capital (same productivity and risks)

Wage factor and interest rate factor $\xrightarrow{\text{same}}$ in nation-1 and nation-

When 2 nations are trading because of difference in relative commodity price.

Nation 1 $\xleftrightarrow[\text{difference in relative commodity Price}]{\text{TRADE}}$ Nation 2

X Y	X Y
X: wage is lower	Y: rate of interest is lower
this country specialises in X	this country specializes in Y.
wages ↑ rate of int. ↓	wages ↓ rate of int ↑



Significant wage difference b/w nation A and nation A'. Therefore, they will trade.

After trade, they will arrive at B

Empirical Tested - Leontief

Wassily Leontief (1951)

US Data (1947)

Utilized Input - Output table of US economy to calculate the amount of labor and capital. $ 1 million worth of US export and import ~~and~~ substitutes for the year 1947.

K/L for US import substitutes
↓
automobiles.

Leontief assumed that US import substitutes will be more than capital intensive actual imports but still less than US export. if H-O model is true.

~~If H-O model is true~~

Results

US import substitutes were 30% more capital intensive than US exports. i.e, US exports labor intensive commodity and imports capital-intensive commodities.

Since, this ~~contradicted~~ contradicted H-O theorem, it was known as

LEONTIEF PARADOX

Explanation

- Leontief took data from 1947 which was closed to the end of the World War 2.

- Natural resources ~~like~~ is abstracted.

- Labor and Capital Intensive without considering the natural resources is inappropriate.

- Many production process using natural resources - coal mining, steel production, farming. This requires physical capital.

- US Tariff Policy i.e, tax on imports

1956. - Kravis

↓

Heavily protected industries are labor-intensive.

- Leontief said that he used only physical capital - machineries, other equipment, buildings & so on. He completely ignored human capital - education, jobs training and health embodied in workers which increases their productivity.

⟹ Relates to Human Capital is the influence of R& D on US Exports.

Kravis, Kenen, Baldwin

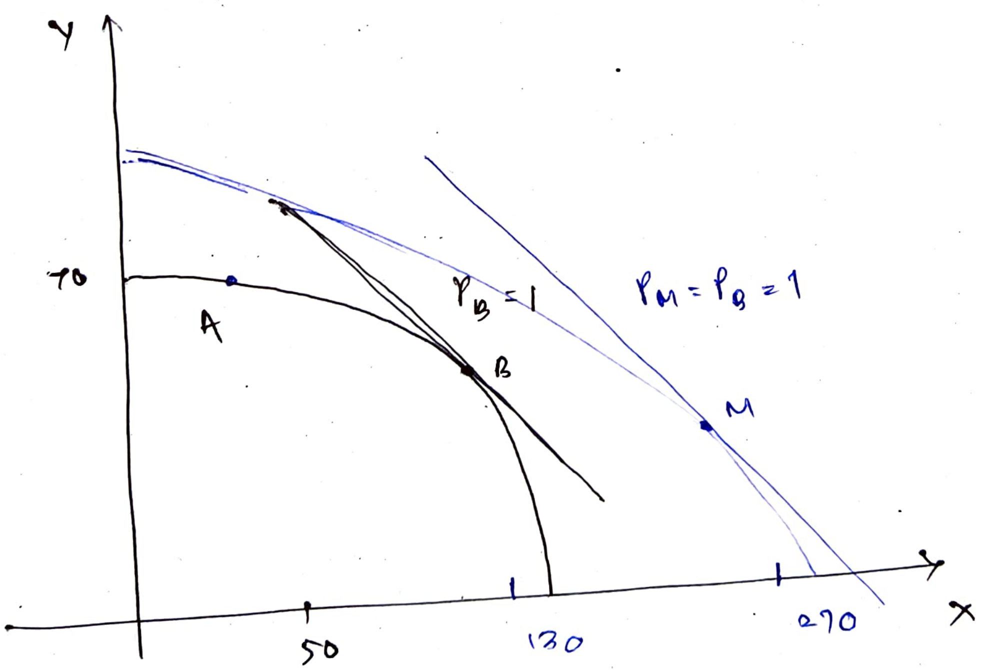
↓

Wages in US export industries in both 1947 and 1951 were about 15% higher than wages in import-competing industries.

~~[illegible]~~

The Rybczynski Theorem

The theorem postulates that at a constant commodity prices, an increase in the endowment of one factor will increase by greater proportion the output of the commodity intensive in that factor. and will reduce the output of the other commodity.



Proof

To make commodity price (const), we need to keep factor prices constant, rent and wage. To make those factor prices constant, we need to keep capital labor ratio (K/L) constant in production of both the commodities.

How to keep K/L constant?

Nation 1

X $L/K \uparrow$ $w \uparrow$ $r \downarrow$

Y $K/L \downarrow$ productivity decreases

so ~~labor~~ K shifts to X

After shift of K to X, the capital is utilised to improve labor specialisation, so capital-labor ratio

STOLPER SAMUELSON THEOREM

The theorem postulates that an increase in relative price of a commodity

for eg. as a result of tariff raises the return or earnings of the

factor used intensively in the production of the commodity.

Thus, the real return to the nation's scarce factor of production

will rise with the imposition of tariff.

for eg, Nation 2 - (Capital Abundant Nation)

Imports - Commodity X (imposes tariff)

By imposing tariff, $\frac{P_x}{P_y} \uparrow$ for domestic consumer.

So, real wage of labor $\uparrow$.

Let price be Rs 10 } Total price = $\underline{\underline{\text{Rs } 40}}$ ← consumer

Tariff Rs 30

↑

domestic producer.

Since X is a scarce factor, taxes that hamper imports will lead to

domestic production of commodity X.

Nation-2 produces more X, less Y.

Expansion of X (Labor-intensive) requires more $\frac{L}{K}$ than is released by reducing output of commodity Y (K-intensive)

As a result, $\frac{w}{r}$ ↑ and K is substituted for L

so $\frac{K}{L}$ rises in production of both commodities.

∴ Imposition of import tariff on commodity X by nation 2 increases $\frac{P_x}{P_y}$ in the nation and increases earnings of L (the nation's scarce factor of production)

SPECIFIC FACTOR MODEL

Assumption – factors are perfectly mobile among nations industries or sector.

– Long run, this is true but it does not work in the short-run,

$X \rightarrow$ L-intensive (L, K)

$Y \rightarrow$ K-intensive (L, K)

Here, L is mobile from one industry to other.

But K is not mobile perfectly

So $\frac{P_x}{P_y} \uparrow$

since labor is mobile b/w 2 industries, industry Y will have to pay the higher nominal wage rate for labor even while facing a reduction in $\frac{P_y}{P_x}$ and the transfer of some of its labor to X production.